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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/755,288 | 01/08/2004 | John Christian Sorensen | 10541-1783 | 1333 |

48003 7590 02/17/2005

BRINKS HOFER GILSON & LIONE/CHICAGO/COOK
PO BOX 10395
CHICAGO, IL 60610

| EXAMINER | |
|---|---|
| TRIEU, THAI BA | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3748 | |

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/755,288 | SORENSEN ET AL. | |
| | Examiner | Art Unit | |
| | Thai-Ba Trieu | 3748 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

This Office Action is in response to the Amendment filed on November 19, 2004. Applicant's cooperation in amending the claims to overcome the claim objections relating to informalities is also appreciated. Claims 1-5, 8-10, 14-20, and 22-24 were amended, and new claims 25-36 were added.

The arguments contained therein were persuasive; however, a new Non-Final Rejection has been set forth below.

### *Specification*

Applicant is required to submit a substitute abstract to meet the requirement set forth below:

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, ***such as "means" and "said," should be avoided***. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim 32 is rejected under 35 U.S.C. 102(b) as being anticipated by Negri (Patent Number 4,142,494).***

Negri discloses an air induction system for inducing airflow into the intake of an internal combustion engine (10) having a turbocharger (20, 34), said system comprising:

an air filter (air cleaner Snorkel 13);

a clean air channel (an interior portion of an air cleaner 14 and a portion of 18 connecting to an air cleaner 14) in fluid communication with an outlet of said air filter (air cleaner Snorkel 13) so that an airflow is formed therein;(See Figure 1);

a diffuser (a portion of 18 connecting to an air cleaner 14) in fluid communication with and located downstream of said clean air channel (an interior portion of an air cleaner 14 and a portion of 18 connecting to an air cleaner 14) (See Figure 1); and

a plenum (a portion of 18 directly connecting to turbocharger) in fluid communication with and located downstream of said diffuser (a portion of 18 connecting to an air cleaner 14) wherein said airflow is directed to an inlet of said turbocharger (See Figure 1).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

***Claims 1, 5, 14-15, 19, 25-26, 27-31, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negri et al. (Patent Number 4,142,494), in view Ironside et al. (Patent number 5,261,236).***

Negri discloses an air induction system for inducing airflow into the intake of an internal combustion engine (10) having a turbocharger (20, 34), said system comprising:

a clean air channel (an interior portion of an air cleaner 14 and a portion of 18 connecting to an air cleaner 14) containing primarily clean air directing airflow to an inlet of said turbocharger (20, 34) (See Figure 1);

a plenum (a portion of 18 directly connecting to turbocharger) in fluid communication with said clean air channel, said plenum located within an area directly in front of said inlet of said turbocharger (See Figure 1); and

an air filter (air cleaner snorkel 13) in fluid communication with an inlet of said clean air channel (an interior portion of an air cleaner 14 and a portion of 18 connecting to an air cleaner 14) and located upstream of said plenum (a portion of 18 directly connecting to turbocharger) (See Figure 1);

wherein said clean air channel (an interior portion of an air cleaner 14 and a portion of 18 connecting to an air cleaner 14) redirects said airflow at least approximately 180 degrees from an outlet of said air filter (13) to said air inlet of said turbocharger (See Figure 1);

wherein said diffuser (a portion of 18 connecting to an air cleaner 14) and said plenum (a portion of 18 directly connecting to turbocharger) each redirected the direction of said airflow within said clean air channel (an interior portion of an air cleaner 14 and a portion of 18 connecting to an air cleaner 14) (See Figure 1); and

wherein said clean air channel comprises an angular diffuser (a portion of 18 connecting to an air cleaner 14) in fluid communication with said plenum (a portion of 18 directly connecting to turbocharger) at approximately a 90-degree angle (See Figure 1).

However, Negri fails to disclose said plenum having an increased cross sectional area relative to a cross sectional area of a portion of the air channel; and said air channel comprising a conical diffuser with a cone angle that establishes an expansion rate of a cross sectional area encompassed within diffuser.

Ironside teach that it is conventional in the art of turbocharged internal combustion engine control system, to utilize said plenum (16) having an increased cross sectional area relative to a cross sectional area of a portion of the air channel (18); and said air channel comprising a conical diffuser with a cone angle that establishes an expansion rate of a cross sectional area encompassed within diffuser (See Figure 1).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized said plenum having an increased cross sectional area relative to a cross sectional area of a portion of the air channel, as taught by Ironside, to control the airflow in the intake manifold and improve the efficiency of the Negri device.

Note that the plenum (16) to the Ironside reference, containing an air cleaning filter for removing particles from the air and having an increased cross sectional area relative to a cross sectional area of a portion of the air duct (clearly seen in Figure 1), is inherently capable of functioning to reduce the velocity of said airflow immediately prior to be delivered to the turbocharger.

***Claims 2, 8, 16, 22, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negri et al. (Patent Number 4,142,494), in view of Ironside et al. (Patent Number 5,261,236), and further in view of Beckley et al. (6,158,082).***

The modified Negri device discloses the invention as recited above; however, fails to disclose a location of a bell-mouth transition.

Beckley teaches that it is conventional in the blower tube noise reduction art, to utilize a bell-mouth transition (63) positioned between the outlet of said plenum (62) and the inlet of the turbocharger (Read as a blower 30), for reducing the velocity of the air flow within the clean air duct and the inlet of the turbocharger (See Figure 10-11 and 16-18).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a bell-mouth transition (63) positioned between the outlet of said plenum and the inlet of the turbocharger, as taught by Beckley, to reduce the turbulence and acoustic energy generated by the air flow through the plenum outlet, and also to improve the efficiency of the turbocharger by reducing the flow resistance in the air supply to the impeller/rotor of the compressor in the modified Negri device.

***Claims 3-4, 9-10, 13, 17-18,and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negri et al. (Patent Number 4,142,494), in view of Ironside et al. (Patent Number 5,261,236) and Beckley et al. (Patent Number 6,158,082), and further in view of Design choice.***

The modified Negri device discloses the invention as recited above; however, fails to disclose the radius of the bell-mouth transition being of approximately 20%, and from approximately 3 to approximately 30% of the effective diameter of the inlet of the turbocharger; and said plenum having a cross-sectional area lowering flow velocity through said plenum to less than 75 m/s.

One having an ordinary skill in the turbocharged internal combustion engine art, would have found the radius of the bell-mouth transition being of approximately 20%, and from approximately 3 to approximately 30% of the effective diameter of the inlet of the turbocharger; and said plenum has a cross-sectional area lowering flow velocity through said plenum to less than 75 m/s, as a matter of design choice. Moreover, there is nothing in the record, which establishes that the claimed dimension and cross

sectional area, presents a novel of unexpected result (See In re Kuhle, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

***Claims 6-7 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negri et al. (Patent Number 4,142,494), in view of Ironside et al. (Patent Number 5,261,236), and further in view of Design choice.***

The modified Negri device discloses the invention as recited above; however, fails to disclose the cone angle being approximately 12 degrees, and in the range of approximately 4 to approximately 16 degrees.

One having an ordinary skill in the turbocharged internal combustion engine art, would have found the cone angle being approximately 12 degrees, and in the range of approximately 4 to approximately 16 degrees, as a matter of design choice, depending on the engine requirements. Moreover, there is nothing in the record, which establishes that the claimed angle, presents a novel of unexpected result (See In re Kuhle, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

***Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negri et al. (Patent Number 4,142,494), in view of Ironside et al. (Patent Number 5,261,236) and Beckley et al. (Patent Number 6,158,082), and further in view of Design choice.***

The modified Negri discloses the invention as recited in the rejection of claim 8; however, fails to disclose the cone angle being approximately 12 degrees, and in the range of approximately 4 to approximately 16 degrees.

One having an ordinary skill in the turbocharged internal combustion engine art, would have found the cone angle being approximately 12 degrees, and in the range of approximately 4 to approximately 16 degrees, as a matter of design choice, depending on the engine requirements. Moreover, there is nothing in the record, which establishes that the claimed angle, presents a novel of unexpected result (See In re Kuhle, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

### *Response to Arguments*

Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
February 5,2005

Thai-Ba Trieu
Primary Examiner
Art Unit 3748